Please substitute the following new claims 45 – 141 for originally pending claims 1 – 44 as follows:

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45. A method for augmenting at least one function of a targeted biologic structure, which comprises targeting the biologic structure by inducing acoustic resonance in the biologic structure.

46. The method of claim 45, wherein said inducing comprises applying at least one resonant acoustic frequency of the biologic structure.

47. The method of claim 46, wherein said applying comprises applying at least a portion of an acoustic signature of the biologic structure.

48. The method of claim 46, wherein said applying comprises applying at least one substantially complete acoustic signature of the biologic structure.

49. The method of claim 45, wherein said inducing comprises applying at least one resonant acousto-EM energy of the biologic structure.

50. The method of claim 49, wherein said applying comprises applying at least a portion of an acousto-EM signature of the biologic structure.

51. The method of claim 49, wherein said applying comprises applying at least one substantially complete acousto-EM signature of the biologic structure.

52. The method of claim 46, wherein said applying occurs at a sufficient power intensity to augment at least one function of the biologic structure, said at least one function being selected from the group of functions consisting of growth, reproduction, regeneration, embryogenesis, metabolism, fermentation, germination, oxidation or reduction activity and wound healing.

53. The method of claim 49, wherein said applying occurs at a sufficient power intensity to augment at least one function of the biologic structure, said at least one function being selected from the group of functions consisting of growth, reproduction, regeneration, embryogenesis, metabolism, fermentation, germination, oxidation or reduction activity and wound healing.

54. The method of claim 45, wherein said biologic structure comprises at least one structure selected from the group of structures consisting of organs, and organisms.

55. The method of claim 45, wherein said biologic structure comprises at least one structure selected from the group of structures consisting of virus, bacteria, fungi, tissue masses, worms, arthropods, chitins, plants, animals, microorganisms, multicellular

organisms, protozoa, liver, muscle, feet, brain, kidney, spleen, blood, lung, lens of eye, aqueous humor, vitreous humor, animal cell, plant cell, proteins, molecules, cell wall, capsule, spore, pili, plasma membrane, organ, portions of structures, components of structures, flagellum, crytoplasmic inclusion body, basal body, parasite, appendages, skin, shell, egg, cement/cement plate, bone, DNA, RNA, carbohydrates, lipids, lipopolysaccharides, glycolipids, glycoproteins, proteoglycans, chloroplasts, mitochondria, endoplasmic reticulum, endotoxins, exotoxins, proteases and ligands for host cell receptors.

56. The method of claim 46, wherein said biologic structure comprises at least one structure selected from the group of structures consisting of virus, bacteria, fungi, tissue masses, worms, arthropods, chitins, plants, animals, microorganisms, multicellular organisms, protozoa, liver, muscle, feet, brain, kidney, spleen, lung, lens of eye, aqueous humor, vitreous humor, plant cell, proteins, molecules, cell wall, capsule, spore, pili, plasma membrane, organ, portions of structures, components of structures, flagellum, crytoplasmic inclusion body, basal body, parasite, appendages, skin, shell, egg, cement/cement plate, bone, DNA, RNA, carbohydrates, lipids, lipopolysaccharides, glycolipids, glycoproteins, proteoglycans, chloroplasts, mitochondria, endoplasmic reticulum, endotoxins, exotoxins, proteases and ligands for host cell receptors.

57. The method of claim 49, wherein said biologic structure comprises at least one structure selected from the group of structures consisting of virus, bacteria, fungi, tissue masses, worms, arthropods, chitins, plants, animals, microorganisms, multicellular organisms, protozoa, liver, muscle, feet, brain, kidney, spleen, lung, lens of eye, aqueous humor, vitreous humor, plant cell, proteins, molecules, cell wall, capsule, spore, pili, plasma membrane, organ, portions of structures, components of structures, flagellum, crytoplasmic inclusion body, basal body, parasite, appendages, skin, shell, egg, cement/cement plate, bone, DNA, RNA, carbohydrates, lipids, lipopolysaccharides, glycolipids, glycoproteins, proteoglycans, chloroplasts, mitochondria, endoplasmic reticulum, endotoxins, exotoxins, proteases and ligands for host cell receptors.

58. A method for augmenting at least one function of a targeted biologic structure, which comprises targeting the biologic structure by inducing acoustic resonance in the biologic structure with select frequencies that augment the targeted biologic structure but have no substantial deleterious effect on nearby, non-resonating structures.

59. A method for affecting at least one function of a targeted biologic structure which comprises targeting the biologic structure by applying at least one resonant acoustic

frequency of the biologic structure and at least one resonant acousto-EM energy of the biologic structure.

60. The method of claim 59, wherein said affecting comprises at least one affect selected from the group of affects consisting of augmenting and disrupting.

61. The method of claim 60, wherein said augmenting comprises at least one augmenting affect selected from the group consisting of growth, reproduction, regeneration, embryogenesis, metabolism, fermentation, germination, oxidation or reduction activity and wound healing.

62. The method of claim 60, wherein said disrupting comprises at least one function selected from the group consisting of (a) structural failure of at least one component in the biologic structure, (b) inhibition of vital processes required for growth, reproduction, metabolism, virulence, and infectivity and (c) tissue cutting, lysis, shattering, rupture and inactivitation.

63. The method of claim 59, wherein said applying comprises applying at least a portion of an acoustic signature of the biologic structure.

64. The method of claim 59, wherein said applying comprises at least one substantially complete acoustic signature of the biologic structure.

65. The method of claim 59, wherein said applying comprises applying at least a portion of an acousto-EM signature of the biologic structure.

66. The method of claim 59, wherein said applying comprises applying at least one substantially complete acousto-EM signature of the biologic structure.

67. A method for affecting at least one function of a targeted biologic structure which comprises targeting the biologic structure by applying at least one resonant acousto-EM energy of the biologic structure.

68. The method of claim 67, wherein said applying comprises applying at least a portion of an acousto-EM signature of the biologic structure.

69. The method of claim 67, wherein said applying comprises applying at least one substantially complete acousto-EM signature of the biologic structure.

70. The method of claim 67, wherein said affecting comprises at least one affect selected from the group of affects consisting of augmenting and disrupting.

71. The method of claim 70, wherein said augmenting comprises at least one augmenting affect selected from the group consisting of growth, reproduction, regeneration,

embryogenesis, metabolism, fermentation, germination, oxidation or reduction activity and wound healing.

72. The method of claim 70, wherein said disrupting comprises at least one function selected from the group consisting of (a) structural failure of at least one component in the biologic structure, (b) inhibition of vital processes required for growth, reproduction, metabolism, virulence, and infectivity and (c) tissue cutting, lysis, shattering, rupture and inactivitation.

73. The method of claim 67, wherein said applying occurs at a sufficient power intensity to affect at least one function of the biologic structure, said at least one function being selected from the group of functions consisting of growth, reproduction, regeneration, embryogenesis, metabolism, fermentation, germination, oxidation or reduction activity, wound healing: structural failure of at least one component in the biologic structure; inhibition of vital processes required for growth, reproduction, metabolism, virulence and infectivity; and tissue cutting, lysis, shattering, rupture and inactivitation.

74. A method for affecting at least one function of a targeted biologic structure, which comprises targeting the biologic structure by inducing acoustic resonance in the biologic structure with resonant acousto-EM energy that affects the targeted biologic structure but has no substantial deleterious effect on nearby, non-resonating structures.

75. A method for affecting at least one function of a targeted biologic structure, which comprises targeting the biologic structure by inducing acoustic resonance in the biologic structure said inducing comprising applying at least two energies selected from the group consisting of at least one acoustic energy and at least one electromagnetic property and/or field, wherein a first of said at least two energies results in said targeted biologic structure being in acoustic resonance and at least a second of said at least two energies augments said first energy.

76. The method of claim 75, wherein said applying occurs at a sufficient power intensity to affect at least one function of the biologic structure.

77. The method of claim 75, wherein said affecting comprises at least one affect selected from the group of affects consisting of augmenting and disrupting.

78. The method of claim 77, wherein said augmenting comprises at least one augmenting affect selected from the group consisting of growth, reproduction, regeneration, embryogenesis, metabolism, fermentation, germination, oxidation or reduction activity and wound healing.

79. The method of claim 77, wherein said disrupting comprises at least one function selected from the group consisting of (a) structural failure of at least one component in the biologic structure, (b) inhibition of vital processes required for growth, reproduction, metabolism, virulence, and infectivity and (c) tissue cutting, lysis, shattering, rupture and inactivitation.

80. The method of claim 76, wherein said at least one function comprises at least one function selected from the group of functions consisting of augmentation, growth, reproduction, regeneration, embryogenesis, metabolism, fermentation, germination, oxidation or reduction activity, wound healing, disruption, tissue cutting, lysis, shattering, rupture, structural failure, inactivitation, and inhibition of vital processes.

81. The method of claim 75, wherein said at least one electromagnetic property and/or field comprises at least one energy selected from the group consisting of direct current, alternating current, electric field, magnetic field and electromagnetic radiation.

82. The method of claim 81, wherein the frequency of said at least one electromagnetic property and/or field is equivalent to at least one resonant acoustic frequency of the biologic structure.

83. A method for disrupting at least one function of a targeted biologic structure, which comprises targeting the biologic structure by inducing acoustic resonance in the biologic structure with select electromagnetic EM properties and/or fields that disrupt the targeted biologic structure but have no substantial deleterious effect on nearby, non-resonating structures.

84. The method of claim 45, further comprising detecting at least one signature of the targeted biologic and comparing said at least one signature to at least one reference signature.

85. The method of claim 59, further comprising detecting at least one signature of the targeted biologic and comparing said at least one signature to at least one reference signature.

86. The method of claim 67, further comprising detecting at least one signature of the targeted biologic and comparing said at least one signature to at least one reference signature.

87. The method of claim 75, further comprising detecting at least one signature of the targeted biologic and comparing said at least one signature to at least one reference signature.

88. The method of claim 83, further comprising detecting at least one signature of the targeted biologic and comparing said at least one signature to at least one reference signature.

89. A method to induce acoustic stimulation of a biologic structure to detect and/or identify a biologic structure comprising:

a) applying to the biologic structure at least one acoustic energy comprising at least one non-resonant frequency to stimulate the biologic structure; and

b) receiving at least one electromagnetic energy pattern from the structure; and

c) determining at least one non-resonant electromagnetic signature of the stimulated biologic structure.

90. A system for inducing acoustic stimulation of a biologic structure to detect and/or identify a biologic structure comprising:

a) means for applying to the biologic structure at least one acoustic energy comprising at least one non-resonant frequency to stimulate the biologic structure; and

b) means for receiving at least one electromagnetic energy pattern from the structure; and

c) means for determining at least one non-resonant electromagnetic signature of the stimulated biologic structure.

91. A method for detecting and/or identifying an inorganic or biologic structure comprising utilizing acousto-EM spectroscopy.

92. A method for detecting and/or identifying an inorganic or biologic structure comprising:

a) inducing acoustic resonance in the structure; and

b) detecting at least one electromagnetic energy pattern of the structure.

93. A method for detecting and/or identifying an inorganic or biologic structure comprising:

a) inducing acoustic resonance in the structure with resonant acousto-EM energy; and

b) detecting at least one acoustic signature of the structure.

94. The method according to claim 92, further comprising comparing said detected at least one electromagnetic energy pattern of the structure with at least one reference signature.

95. The method according to claim 93, further comprising comparing said detected at least one acoustic signature of the structure with at least one reference signature.

96. The method according to claim 92, wherein said at least one electromagnetic energy pattern comprises at least one acousto-EM signature which is produced by at least one source selected from the group of sources consisting of acoustic energy and electromagnetic (EM) properties and/or fields.

97. The method according to claim 92, wherein acoustic resonance is induced by utilizing at least one energy selected from the group consisting of acoustic energy including

at least one resonant acoustic frequency of the structure, electromagnetic energy which is substantially equivalent to at least one resonant acoustic frequency of the structure, electromagnetic energy which is substantially equivalent to at least a portion of at least one acousto-EM signature of the structure and electromagnetic energy which is substantially equivalent to at least one substantially complete acousto-EM signature of the structure.

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98. A system for identifying a structure by determining at least one resonant acoustic signature of the structure comprising:

a) electromagnetic means for inducing acoustic resonance in the structure;

b) means for detecting at least one acoustic signature of the structure; and

c) means for comparing said at least one detected acoustic signature of the structure with at least one reference acoustic signature of the structure.

99. The system according to claim 98, further comprising a means for detecting at least one acousto-EM signature of the structure.

100. The system according to claim 91, wherein said structure comprises at least one member selected from the group consisting of inorganic and biologic structures.

101. The system of claim 91, wherein said structure comprises at least one member selected from the group consisting of virus, bacteria, fungi, tissue masses, worms, arthropods, chitins, plants, animals, microorganisms, multicellular organisms, protozoa, liver, muscle, feet, brain, kidney, spleen, blood, lung, lens of eye, aqueous humor, vitreous humor, animal cell, plant cell, proteins, molecules, cell wall, capsule, spore, pili, plasma membrane, organ, portions of structures, components of structures flagellum, crytoplasmic inclusion body, basal body, parasite, appendages, skin, shell, egg, cement/cement plate, bone, DNA, RNA, carbohydrates, lipids, lipopolysaccharides, glycolipids, glycoproteins, proteoglycans, chloroplasts, mitochondria, endoplasmic reticulum, endotoxins, exotoxins, proteases and ligands for host cell receptors and organic ions and molecules.

102. The system according to claim 93, wherein said means for inducing acoustic resonance in the structure includes at least one signal generating device and at least one transducer.

103. The system according to claim 97, wherein placement of said at least one transducer comprises at least one location selected from the group consisting of on the bottom of a vessel, on the walls of a vessel, in a vessel, intravascularly in a biologic structure, extracorporeally of a biologic structure, in vivo, in vitro, in a hand held probe, a piezoelectric sheet, in a remote control unit and in a scalpel tip.

104. A system for identifying a structure by determining at least one acousto-EM signature of the structure comprising:

a) means for inducing acoustic resonance in the structure;

b) means for detecting said at least one acousto-EM signature of the structure.

105. A system for inducing targeted acoustic resonance in a biologic structure to augment at least one function of the biologic structure comprising:

a) means for generating at least one targeted acoustic signal;

b) means for transmitting said at least one targeted acoustic signal to the biologic structure; and

c) means for controlling the power level of said at least one targeted acoustic signal to augment at least one function of the biologic structure.

106. A system for inducing targeted acoustic resonance in a biologic structure to affect at least one function of the biologic structure comprising:

a) means for generating at least one electromagnetic signal; and

b) means for transmitting said at least one electromagnetic signal to the biologic structure.

107. A system for determining induction of acoustic resonance in a structure comprising:

a) means for generating electromagnetic energy corresponding to at least a portion of at least one acousto-EM signature;

b) means for transmitting said electromagnetic energy to the structure;

c) means for receiving at least one signal from the structure when said electromagnetic energy has interacted with the structure; and

d) means for determining induction of acoustic resonance in the structure.

108. The method of claim 107, wherein said electromagnetic energy corresponds to a substantially complete acousto-EM signature.

109. A method for determining induction of acoustic resonance in a structure characterized by the steps comprising:

a) irradiating the structure with electromagnetic energy corresponding to at least a portion of at least one EM energy pattern of an object in acoustic resonance;

b) receiving at least one signal from the structure when said electromagnetic energy has interacted with the structure; and

c) determining induction of acoustic resonance in the structure.

110. The method of claim 109, wherein said electromagnetic energy corresponds to a substantially complete EM energy pattern of said object in acoustic resonance.

111. A method to affect at least one function of a living transducer comprising applying at least one electromagnetic energy to the living transducer, said at least one electromagnetic energy comprising at least one frequency which includes at least one resonant frequency of the living transducer to induce acoustic resonance within the living transducer said at least one electromagnetic energy being present in an amount sufficient to affect at least one function of the living transducer.

112. A method for affecting a targeted inorganic structure, the method comprising applying at least a portion of at least one EM energy pattern of an object in acoustic resonance.

113. A method for affecting an inorganic structure comprising applying at least a portion of at least one EM energy pattern of an object in acoustic resonance.

114. The method of claim 112, wherein said inorganic structure comprises at least one structure selected from the group consisting of inorganic matter and structures, impurities in metal alloys, armaments, weapons, plastics, plastic explosives, polymers, leather, paper and fabrics.

115. The method of claim 113, wherein said inorganic structure comprises at least one structure selected from the group consisting of inorganic matter and structures, impurities in metal alloys, armaments, weapons, plastics, plastic explosives, polymers, leather, paper and fabrics.

116. The method of claim 112, wherein a substantially complete EM energy pattern is applied.

117. The method of claim 113, wherein a substantially complete EM energy pattern is applied.

118. The method of claim 112, wherein said structure is affected by disruption.

119. The method of claim 112, wherein said structure is affected by augmentation.

120. A method for detecting an inorganic structure comprising:

a) inducing acoustic resonance in the structure; and

b) detecting at least one resonant acousto-EM energy.

121. A method for detecting an inorganic structure comprising:

a) inducing acoustic resonance in the structure by applying a substantially complete acousto-EM signature; and

b) detecting at least one acoustic signature.

122. A method for augmenting the growth of an aquatic species comprising:

a) determining at least one first resonant frequency of said aquatic species; and

b) applying said at least one first resonant frequency at a sufficient power intensity to cause said augmenting to occur.

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123. The method of claim 122, wherein said determining comprises measuring acoustic resonance frequency profiles.

124. The method of claim 123, wherein said measuring comprises transmitting acoustic energy to said aquatic species with at least one transducer.

125. The method of claim 124, wherein said contacting comprises placing said aquatic species adjacent said at least one transducer and scanning said aquatic species with a range of acoustic frequencies.

126. The method of claim 122, further comprising determining at least one second resonant frequency of said aquatic species; and applying said at least one second resonant frequency at a sufficient power intensity to cause further augmenting to occur.

127. The method of claim 126, wherein said at least one second resonant frequency is applied at a later point in time after said aquatic species has grown in size.

128. The method of claim 122, wherein said applying comprises placing at least one transducer in communication with said aquatic species.

129. The method of claim 128, wherein said at least one transducer is placed in at least one wall of an enclosure that contains said aquatic species.

130. The method of claim 122, wherein said augmenting the growth comprises at least one of increasing survivability and increasing growth rate.

131. The method of claim 122, wherein said augmenting comprises increasing survivability and increasing growth rate.

132. A method for augmenting the growth of an aquatic species comprising:

a) determining at least one first acoustic resonance frequency profile of said aquatic species;

b) applying at least a portion of said first acoustic resonance frequency profile at a sufficient power intensity to cause said augmenting to occur;

c) determining and applying at least one second acoustic resonance frequency profile by substantially repeating the steps a) and b) above at a point in time after said aquatic species has grown in size; and

d) repeating step c) to achieve additional augmentation of said aquatic species.

133. The method of claim 122, wherein said aquatic species comprises at least one fish.

134. The method of claim 133, wherein said at least one fish comprises small-fry.

135. The method of claim 122, wherein said at least one fish comprises a plurality of fish contained within an enclosure.

136. A method for augmenting the growth of a plant species comprising;

a) determining at least one first resonant acoustic frequency of said plant species; and

b) applying said at least one first resonant frequency at a sufficient power intensity to cause said augmenting to occur.

137. The method of claim 136, wherein said determining comprises utilizing a frequency sweeping process to identify said at least one first resonant frequency.

138. The method of claim 137, wherein said frequency sweeping process comprises utilizing at least one transducer and at least one signal generator.

139. The method of claim 136, wherein said augmenting the growth comprises at least one of enhancing germination and increasing growth rate.

140. The method of claim 136, wherein said augmenting the growth comprises enhancing generation and increasing growth rate.

141. The method of claim 136, wherein said applying comprises placing at least one transducer in communication with said plant species.